

WHAT IS CLAIMED IS:

1. An electric power generating element for a fuel cell comprising:
a positive electrode for reducing oxygen;
5 a negative electrode for oxidizing a fuel; and
a solid electrolyte provided between the positive electrode and the negative electrode;
wherein at least one selected from the positive electrode and the negative electrode comprises a laminate of at least two electrode layers
10 containing a catalyst,
each of the electrode layers has a thickness of at most 50 μm , and
an adhesive layer is disposed between the electrode layers.
2. The electric power generating element for a fuel cell according to
15 claim 1, wherein the adhesive layer contains a polymer material having a proton conducting property.
3. The electric power generating element for a fuel cell according to
claim 2, wherein the electrode layers contain a polymer material similar to
20 the polymer material contained in the adhesive layer.
4. The electric power generating element for a fuel cell according to
claim 1, wherein the catalyst contained in each of the electrode layers has a
mass per unit electrode area of 0.3 to 3 mg/cm^2 .
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5. The electric power generating element for a fuel cell according to
claim 1, wherein the adhesive layer has a thickness of 1 to 5 μm .
6. The electric power generating element for a fuel cell according to
30 claim 1, wherein the laminate has a total thickness of 30 to 300 μm .
7. An electric power generating element for a fuel cell comprising:
a positive electrode for reducing oxygen;
a negative electrode for oxidizing a fuel; and
35 a solid electrolyte provided between the positive electrode and the negative electrode;
wherein at least one selected from the positive electrode and the

negative electrode comprises a laminate of at least two electrode layers containing a catalyst and a polymer material having a proton conducting property,

- 5 each of the electrode layers has a thickness of at most 50 μm , and
 the polymer material is present more in an interface part of each of the electrode layers than in an inner part thereof.

8. The electric power generating element for a fuel cell according to claim 7, wherein the catalyst contained in each of the electrode layers has a
10 mass per unit electrode area of 0.3 to 3 mg/cm^2 .

9. The electric power generating element for a fuel cell according to claim 7, wherein the laminate has a total thickness of 30 to 300 μm .

- 15 10. A fuel cell comprising:
 an electric power generating element for a fuel cell comprising
 a positive electrode for reducing oxygen,
 a negative electrode for oxidizing a fuel, and
 a solid electrolyte provided between the positive electrode
20 and the negative electrode;
 wherein at least one selected from the positive electrode and the negative electrode comprises a laminate of at least two electrode layers containing a catalyst,
 each of the electrode layers has a thickness of at most 50 μm , and
25 an adhesive layer is disposed between the electrode layers.

11. The fuel cell according to claim 10, wherein the adhesive layer contains a polymer material having a proton conducting property.

30 12. The fuel cell according to claim 11, wherein the electrode layers contain a polymer material similar to the polymer material contained in the adhesive layer.

13. The fuel cell according to claim 10, wherein the catalyst contained in
35 each of the electrode layers has a mass per unit electrode area of 0.3 to 3 mg/cm^2 .

14. The fuel cell according to claim 10, wherein the adhesive layer has a thickness of 1 to 5 μm .
15. The fuel cell according to claim 10, wherein the laminate has a total
5 thickness of 30 to 300 μm .
16. A fuel cell comprising:
an electric power generating element for a fuel cell comprising
a positive electrode for reducing oxygen,
10 a negative electrode for oxidizing a fuel, and
a solid electrolyte provided between the positive electrode
and the negative electrode;
wherein at least one selected from the positive electrode and the
negative electrode comprises a laminate of at least two electrode layers
15 containing a catalyst and a polymer material having a proton conducting
property,
each of the electrode layers has a thickness of at most 50 μm , and
the polymer material is present more in an interface part of each of
the electrode layers than in an inner part thereof.
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17. The fuel cell according to claim 16, wherein the catalyst contained in
each of the electrode layers has a mass per unit electrode area of 0.3 to 3
mg/cm².
- 25 18. The fuel cell according to claim 16, wherein the laminate has a total
thickness of 30 to 300 μm .